

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (currently amended) A method for enhancing a digital image comprising:
providing a digital original image comprising a plurality of pixels, wherein
each pixel includes an original value corresponding to a characteristic of the image;

calculating a dynamic image mask value for each pixel by averaging the
original value of a pixel with the original values of the pixels proximate that pixel ~~having
original values lower than a threshold sharpness~~; and

applying the dynamic image mask value to the original value for each
corresponding pixel using a mathematical function to control contrast and produce an
enhanced image having improved detail.

Claim 2. (original) The method of Claim 1, wherein providing a digital original image
comprises capturing a digital original image using a digital capture device.

Claim 3. (original) The method of Claim 1, wherein providing a digital original image
comprises capturing a digital original image using an imaging system.

Claim 4. (original) The method of Claim 1, wherein the original value corresponding to
a characteristic of the image comprises an intensity value corresponding to a color.

Claim 5. (original) The method of Claim 1, wherein the original value corresponding to
a characteristic of the image comprises an intensity value corresponding to range of
frequencies.

Claim 6. (currently amended) The method of Claim 1, wherein averaging the original

value of a pixel with only the original values of the pixels proximate that pixel further comprises having original values less lower than a sharpness threshold sharpness, wherein said averaging further comprises averaging the original value of a pixel with only the weighted original values of the pixels proximate that pixel having original values less than a the sharpness threshold sharpness.

Claim 7. (original) The method of Claim 6, wherein the weighted original values are determined according to the following formula:

$$w_N = \left(1 - \left| \frac{pixelN - centerpixel}{Gain} \right| \right),$$

wherein pixelN is the value of the pixel being weighed, center pixel is the value of a central pixel, and wherein Gain is the threshold sharpness.

Claim 8. (currently amended) The method of Claim 4-6, wherein the original values used to calculate the difference less than the sharpness threshold sharpness correspond to different characteristics than the original values used in averaging.

Claim 9. (original) The method of Claim 1, wherein calculating a dynamic image mask value includes performing a pyramidal decomposition on the original image.

Claim 10. (original) The method of Claim 1, wherein the mathematical function comprises division.

Claim 11. (previously presented) A method for enhancing a digital image comprising:
providing a digital original image comprising a plurality of pixels, wherein each pixel includes an original value corresponding to a characteristic of the image;
calculating a dynamic image mask value for each pixel by averaging the original value of a pixel with the original values of the pixels proximate that pixel having

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original values lower than a threshold sharpness; and

applying the dynamic image mask value to the original value for each corresponding pixel using a mathematical function to produce an enhanced image, wherein the mathematical function comprises:

$$OUT = \frac{IN}{\frac{3}{4} MASK + \frac{1}{4}},$$

wherein OUT is the value of the pixel being calculated in the enhanced scanned image, IN is the value of the relative pixel in the original image, and MASK is the value of the relative pixel in the dynamic image mask.

Claim 12. (original) The method of Claim 1, further comprising performing histogram leveling to the enhanced scanned image.

Claim 13. (original) The method of Claim 1, wherein the enhanced scanned image includes an image contrast and a grayscale contrast.

Claim 14. (original) The method of Claim 13, wherein the image contrast and the grayscale contrast can be controlled independently of each other.

Claim 15. (original) The method of Claim 1, wherein the dynamic image mask value may be proportionally varied by a user.

Claim 16. (currently amended) A system comprising:

a sensor system operable to produce electronic signals corresponding to certain characteristics of a subject;

a processor operable to receive the electronic signals and produce image values for each pixel; and

a memory media having software stored thereon, wherein the software is

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operable to:

calculate a dynamic image mask value for each pixel by averaging the image value of a pixel with the image values of the pixels proximate that pixel having image values lower than a threshold sharpness; and
apply the dynamic image mask value to the image value for each corresponding pixel using a mathematical function to control contrast and produce an enhanced image having improved detail within a reproducible dynamic range.

Claim 17. (original) The system of Claim 16, wherein the sensor system operates to measure light from the subject.

Claim 18. (original) The system of Claim 16, wherein the sensor system operates to measure a magnetic resonance pulse.

Claim 19. (original) The system of Claim 16, further comprising a printer operable to print the enhanced image.

Claim 20. (original) The system of Claim 19, wherein the printer comprises a photographic printer.

Claim 21. (original) The system of Claim 16, further comprising a digital output device operable to store the enhanced image.

Claim 22. (original) The system of Claim 16, wherein the system comprises a digital device within the group of a digital camera and a video camera.

Claim 23. (original) The system of Claim 16, wherein the system comprises an imaging system within the group of a magnetic resonance imaging system and a radar system.

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Claim 24. (original) The system of Claim 16, wherein the software is loaded into the image capturing device.

Claim 25. (original) The system of Claim 16, wherein the system comprises a printer device.

Claim 26. (currently amended) A software tangibly embodied in a computer readable medium, the software operable to produce an enhanced image by implementing a method comprising:

generating a dynamic image mask from a digital original image, the dynamic image mask and the original image each comprising a plurality of pixels having varying values, wherein the values of the plurality of dynamic image mask pixels are set to form sharper edges corresponding to areas of more rapidly changing pixel values in the original image and less sharp regions corresponding to areas of less rapidly changing pixel values in the original image; and

combining the dynamic image mask with the original image to control contrast and produce the enhanced image having improved detail.

Claim 27. (original) The software of Claim 26, wherein:

the original image includes an amount of image detail encoded in a physically reproducible dynamic range; and

wherein the enhanced image includes an increased amount of detail encoded in the physically reproducible dynamic range.

Claim 28. (original) The software of Claim 26, wherein combining the dynamic image mask with the original image is performed through mathematical manipulation.

Claim 29. (original) The software of Claim 28, wherein the mathematical manipulation

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includes division.

Claim 30. (previously presented) A software tangibly embodied in a computer readable medium, the software operable to produce an enhanced image by implementing a method comprising:

generating a dynamic image mask from a digital original image, the dynamic image mask and the original image each comprising a plurality of pixels having varying values, wherein the values of the plurality of dynamic image mask pixels are set to form sharper edges corresponding to areas of more rapidly changing pixel values in the original image and less sharp regions corresponding to areas of less rapidly changing pixel values in the original image, wherein the pixels in the dynamic image mask are generated according to the equation:

$$OUT = \frac{IN}{\frac{3}{4} MASK + \frac{1}{4}},$$

wherein OUT is the value of the pixel being calculated in the enhanced image, IN is the value of the relative pixel in the original image, and MASK is the value of the relative pixel in the dynamic image mask; and

combining the dynamic image mask with the original image to produce the enhanced image.

Claim 31. (original) The software of Claim 26, further comprising histogram leveling.

Claim 32. (original) The software of Claim 26, wherein the value of a pixel in the dynamic image mask is generated by averaging the value of a central pixel corresponding to the pixel in the original image with weighted values of a plurality of neighboring pixels in the original image.

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Claim 33. (original) The software of Claim 32, wherein the weighting of the plurality of neighboring pixels is dependant on a proximity of the neighboring pixels to the central pixel and a contrast of the plurality of neighboring pixels to the central pixel.

Claim 34. (original) The software of Claim 26, wherein the weight of pixels in the dynamic image mask is determined according to the following formula:

$$w_N = \left(1 - \left| \frac{pixelN - centerpixel}{Gain} \right| \right),$$

wherein pixelN is the value of the pixel being weighted, center pixel is the value of the central pixel, and wherein Gain is a threshold contrast value for determining a sharp edge.

Claim 35. (previously presented) The software of Claim 26, wherein the value of a pixel in the dynamic image mask is generated based on a relationship of a value of a different characteristic.

Claim 36. (original) The software of Claim 26, wherein the generating the dynamic image mask includes performing a pyramidal decomposition on the original image.

Claim 37. (original) The software of Claim 26, wherein the software is resident on a computer.

Claim 38. (original) The software of Claim 26, wherein the software is resident on a digital camera.

Claim 39. (currently amended) A system comprising:
an image sensor to convert light reflected from an image into information representative of the image;
a processor;

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memory operably coupled to the processor; and
a program of instructions capable of being stored in the memory and executed by the processor, the program of instructions to manipulate the processor to:

obtain a dynamic image mask, the dynamic image mask and the information representative of the image each including a plurality of pixels having varying values, wherein the values of the plurality of dynamic image mask pixels are set to form sharper edges corresponding to areas of more rapidly changing pixel values in the original image and less sharp regions corresponding to areas of less rapidly changing pixel values in the original image; and

combine the dynamic image mask with the information representative of the image to control contrast and obtain a masked image having improved detail within a reproducible dynamic range.

Claim 40. (previously presented) The system of Claim 39, further including a color decoder, operably connected to the image sensor, to generate color information from the information representative of the image.

Claim 41. (previously presented) The system of Claim 40, wherein the program of instructions are executed on an output of the image sensor, and where a result of the executed program of instructions are input to the color decoder.

Claim 42. (previously presented) The system of Claim 39, further including a color management system, operably connected to the color decoder, to process the color information.

Claim 43. (previously presented) The system of Claim 42, wherein the program of

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instructions are executed on an output of the color decoder, and where a result of the executed program of instructions are input to the color management system.

Claim 44. (previously presented) The system of Claim 43, wherein the output of the color decoder is information representative of a red portion of the image, a green portion of the image, and a blue portion of the image.

Claim 45. (previously presented) The system of Claim 42, further including a storage system, operably connected to the color management system, to store the color information.

Claim 46. (previously presented) The system of Claim 45, wherein the program of instructions are executed on an output of the color management system, and where a result of the executed program of instructions are input to the storage system.

Claim 47. (original) The system of Claim 39, further including a display, operable to display a representation of the information representative of the image.

Claim 48. (previously presented) The system of Claim 47, wherein the program of instructions are executed on an output of a color management system, and where a result of the executed program of instructions are input to the display.